

**110.—SHRINKAGE OF WHITEFISH EGGS DURING TRANSPORTATION ON TRAYS.****By W. F. PAGE.**

On December 8, 1886, a case of whitefish eggs was received at Central Station, U. S. Fish Commission, Washington, D. C., from F. N. Clark, Northville, Mich. The package was said to contain 100,000 eggs. When the package was opened and the eggs were transferred to a McDonald hatching-jar (new style) at 4 p. m. on the same day, the eggs were found to measure but 64,000. They were again carefully remeasured at 9 a. m. on December 10, and found to be 72,000, an increase of  $12\frac{1}{2}$  per cent.

When the eggs were received they did not present any appearance of shriveling or other distortion from normal shape and size; yet it is evident that a shrinkage of bulk must have occurred between the time they left Northville and arrived in Washington, and further, that they regained a part at least of their former bulk. On January 8, 1887, thirty days after the second measurement, they were again measured and, although a small number of dead eggs had been removed from the jar the number was still found to be 72,000.

If, as it appears, a shrinkage of  $12\frac{1}{2}$  per cent occurs in the comparatively short shipment from Northville to Washington, it is fair to suppose that in the longer transoceanic shipments the shrinkage would amount to much more.

On January 22 a consignment of eggs which had been out of water about 28 hours arrived at Central Station, and were at once placed in circulation in 12 jars of water at  $37^{\circ}$  F. Measurements of the quantity were made on the basis of 36,000 eggs to the quart after introduction into the jars and 42 hours later, with the following result:

Number of jar.	Number of eggs as indicated by first measurement.	Number of eggs as indicated by second measurement.
2	153,000	165,000
3	153,000	158,000
4	133,000	150,000
5	153,000	158,000
6	145,000	162,000
7	153,000	180,000
8	125,000	144,000
10	135,000	153,000
11	135,000	158,000
12	135,000	155,000
13	140,000	160,000
14	140,000	157,000
Total in 12 jars.	1,700,000	1,900,000

The increase in bulk due to returning the eggs to water amounts to  $11\frac{1}{7}$  per cent.

WASHINGTON, D. C., *January 27, 1887.*